UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/091,188	03/04/2002	Alan Argento	UOM 0202 PUS	6337

22045 7590 12/04/2003

BROOKS KUSHMAN P.C.
1000 TOWN CENTER
TWENTY-SECOND FLOOR
SOUTHFIELD, MI 48075

EXAMINER	
SAINT SURIN, JACQUES M	

ART UNIT	PAPER NUMBER
2856	

DATE MAILED: 12/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/091,188	ARGENTO ET AL.	
	Examiner	Art Unit	
	Jacques M Saint-Surin	2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 October 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Amendment

1. This Office Action is responsive to the amendment of 10/14/03.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

3. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Telschow et al. (US Patent 6,134,006) in view of Hashima et al. (US Patent 5,521,843).

Regarding claims 1 and 10, Telschow ('006) discloses a method for measuring vibration of an object (method are disclosed for performing noncontacting measurements that characterize a vibrating image of an object of interest, see: col. 3, lines 1-3), the method comprising:

providing calibration data based on a correlation of a change in distance in a detector plane substantially parallel to physical movement of the object (one technique for vibrating a specimen such as object of interest 12 is to apply an excitation via a shaker such as a wide bandwidth piezoelectric transducer that is placed in contact with the specimen, or object of interest, to induce vibrational modes of the object of interest 12, see: col. 4, lines 40-45) and also (calibration measurements have been implemented using a piezoelectric translation mirror, the excited vibrational modes of the specimen determine the frequency-dependent displacement amplitude of the surface, see: col. 6, lines 39-42);

generating a plurality of images (light emitter, or laser, 16 generates light that is transmitted along a first beam path generally indicated by reference numeral 20, emitter 16 is configured to produce two or more wavefronts, one wavefront comprising object beam 22 and another wavefront comprising reference beam 24, see: col. 4, lines 50-52 and 61-65) from signals reflected from the object (12) in the detector plane (photorefractive substance 44 comprises a sensing media having a detection resolution, see: col. 6, lines 30-31, see also col. 6, lines 3-10);

measuring energy in the images in the detector plane to produce a plurality of signals (a measurement device, or imaging device, in the form of a photodetector such as a (CCD) camera 50, is used to detect a forward diffracted beam that has been enhanced via the gain of the two-wave mixing process, see: col. 6, lines 51-54 and 57-59 and col. 10, 53-56); and processing the plurality of signals with the calibration data to obtain as vibration measurement of the object (as shown in FIG. 5, camera 50 comprises a detector configured to detect the image of a vibrating surface wherein the reflected object beam 122 and the modulated reference beam 124 are combined in association with the sensing media, or photorefractive substance 44; object beam 122 and reference beam 124 interfere and produce simultaneous vibration measurements distributed over object 12 so as to produce an image of the vibration and display 52 and/or image processing apparatus 58 further aid in visual identification of the detected image of vibration, see: col. 14, lines 13-22). Note that the spaced-apart marks are disclosed as parallel lines or single line in the specification and are also claimed as such. However, Telschow et al. does not specifically disclose an object having a pair

of substantially coplanar, spaced-apart marks. Hashima shows in Fig. 1 a target mark 10 comprises a black circle and is mounted on the object 1, see: col. 7, lines 45-48. It would have been obvious to one having ordinary skill in the art to utilize in Telschow et al. the techniques of Hashima et al. as taught above because it would have been obvious to provide a target mark having disk-shaped marks 231-234 disposed on a flat white background 230 and spaced by spaced distances from each other in order to measure the vibration of an object having spaced-marks in a reliable manner.

Regarding claim 10, it is a system claim that recites the means for performing the steps of the method claim 1. Therefore, it is rejected for the reasons set forth for that claim.

Regarding claims 2 and 12, Telschow does not disclose the spaced-apart marks are part of the object. Hashima et al. discloses the target mark is attached to the object, see: col. 29, lines 29-30. It would have been obvious to one having ordinary skill in the art because since the marks are mounted on the object, the distance up to and the attitude of the object can accurately be measured without lowering the resolution even when the camera faces the object head on thereby, making the avove combination more effective.

Regarding claims 3 and 11 Telschow in view of Hashima discloses the target mark is imaged by a small-size CCD camera mounted on the tip of a manipulator (see: col. 29, lines 35-36) to meet the limitations of a marker and the step of marking.

Regarding claims 4, 13 and 14, Telschow discloses beam splitter 18 is located to split a beam of light emitted from light emitter 16 so as to form first beam path and

second beam path 30 (see: col. 5, lines 2-4 of Telschow). Also, Telschow in view of Hashima discloses upon being reflected off of surface 14 of vibrating object of interest 12, object beam 22 has been impressed with information defining the given vibration displacement amplitude and vibration phase of object 12 (see: col. 5, lines 60-63 of Telschow). Furthermore, Telschow discloses a photodetector 50 in the form of a CCD camera (see: col. 7, lines 39-40).

Regarding claims 5, 9, 15 and 18, Telschow in view of Hashima discloses when the circle in the three-dimensional space is projected, at least one the straight lines extending diametrically across the circle in the object space extends parallel to the image plane, see: Hashima, col. 26, lines 30-33.

Regarding claim 6-8, 16-17 and 19, Telschow in view of Hashima discloses the marks M1 and M2 are interconnected by a line. Furthermore, the reference discloses the central point thereof is defined by the point of intersection between the boundary lines and can be extracted with high sensitivity (see: col. 29, lines 9-10 of Hashima).

REMARKS

4. In response to Applicant's arguments of page 4, third paragraph "In summary, the method of the present application is completely different from that of Telschow, et al. and as such, does not suffer many of the limitations of the Telschow method" and further in the last paragraph of page 4, "In summary, although the method in the present application and that of Hashima et al., both use projective geometry and easily visible targets attached to the object of interest, the target attributes of interest, the method for obtaining these attributes, and the application of the method itself are all different". The

Examiner, respectfully, disagrees because Applicant cannot show non-obvious by attacking references individually where, as here the rejections are based on combination of references. **In re Keller, 208 USPQ 871 (CCPA 1981).**

5. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case,

6. In response to applicant's argument that there is no obvious way for one of ordinary skill in the art to combine the two mwthods, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Response to Arguments

7. Applicant's arguments filed 10/14/03 have been fully considered but they are not persuasive.

Conclusion

8. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacques M Saint-Surin whose telephone number is (703) 308-3698. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (703) 305-4705. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 0956.

Jacques M. Saint-Surin
November 14, 2003

HEZRON WILLIAMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800